

METHODS AND APPARATUS FOR ACCESSING A DOUBLY LINKED LIST  
IN A DATA STORAGE SYSTEM

ABSTRACT OF THE DISCLOSURE

- 5           A data storage system has storage devices, a processor which is configured to move data to and from the storage devices, and a bus coupled to the processor. The data storage system further includes a memory board having (i) an interface which couples to the bus, (ii) memory which is configured to store a doubly linked list data structure, and (iii) a memory board control circuit coupled to the interface and the memory. The
- 10   memory board control circuit is capable of accessing the data structure. In particular, the memory board control circuit is configured to receive a modify command from the processor through the interface and the bus, atomically modify the data structure in accordance with the modify command, and provide a result to the processor through the interface and the bus in response to modifying the data structure.